

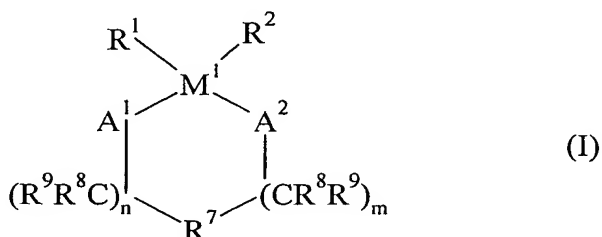
**PROCESS FOR THE OLIGOMERIZATION  
OF  $\alpha$ -OLEFINS HAVING LOW UNSATURATION**

**ABSTRACT OF THE DISCLOSURE**

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A process is disclosed for the preparation of a poly( $\alpha$ -olefin) polymer wherein the process comprises polymerizing at least one  $\alpha$ -olefin in the presence of hydrogen and a catalytically effective amount of catalyst comprising the product obtained by combining a metallocene catalyst with a cocatalyst, the metallocene catalyst being at least one *meso* compound of general formula:

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wherein:

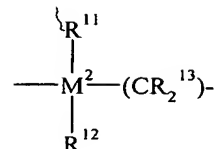
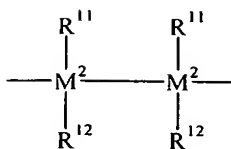
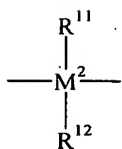
$\text{A}^1$  and  $\text{A}^2$  are independently selected from the group consisting of mononuclear and polynuclear hydrocarbons;

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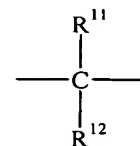
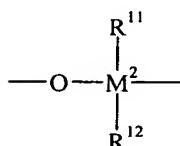
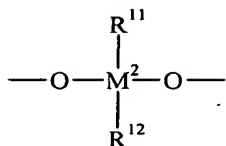
$\text{M}^1$  is a metal from group IVb, Vb, or VIb of the Periodic Table;

$\text{R}^1$  and  $\text{R}^2$  are independently selected from the group consisting of hydrogen,  $\text{C}_1$ - $\text{C}_{10}$  alkyl,  $\text{C}_1$ - $\text{C}_{10}$  -alkoxy,  $\text{C}_6$ - $\text{C}_{10}$  aryl,  $\text{C}_6$ - $\text{C}_{10}$  aryloxy,  $\text{C}_2$ - $\text{C}_{10}$  alkenyl,  $\text{C}_7$ - $\text{C}_{40}$  arylalkyl,  $\text{C}_7$ - $\text{C}_{40}$  alkylaryl,  $\text{C}_8$ - $\text{C}_{40}$  arylalkenyl and halogen;  $\text{R}^7$  is selected from the group consisting of:

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=BR<sup>11</sup>, =AlR<sup>11</sup>, -Ge-, -Sn-, -O-, -S-, =SO, =SO<sub>2</sub>, =NR<sup>11</sup>, =CO, =PR<sup>11</sup> and =P(O)R<sup>11</sup>,

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where

R<sup>11</sup>, R<sup>12</sup>, and R<sup>13</sup> are independently selected from the group consisting of hydrogen, halogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> fluoroalkyl, C<sub>6</sub>-C<sub>10</sub> aryl, C<sub>6</sub>-C<sub>10</sub> fluoroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>7</sub>-C<sub>40</sub> arylalkyl, C<sub>8</sub>-C<sub>40</sub> arylalkenyl, and C<sub>7</sub>-C<sub>40</sub> alkylaryl, or R<sup>11</sup> and R<sup>12</sup> or R<sup>11</sup> and R<sup>13</sup>, in each case with the atoms connecting them, form a ring; and M<sup>2</sup> is selected from the group consisting of silicon, germanium, and tin;

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R<sup>8</sup> and R<sup>9</sup> are independently selected from the group consisting of hydrogen, halogen, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> fluoroalkyl, C<sub>6</sub>-C<sub>10</sub> aryl, C<sub>6</sub>-C<sub>10</sub> fluoroaryl, C<sub>1</sub>-C<sub>10</sub> alkoxy, C<sub>2</sub>-C<sub>10</sub> alkenyl, C<sub>7</sub>-C<sub>40</sub> arylalkyl, C<sub>8</sub>-C<sub>40</sub> arylalkenyl, and C<sub>7</sub>-C<sub>40</sub> alkylaryl;

m and n are identical or different and are zero, 1, or 2, with m plus n being zero,

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1 or 2.

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